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BULLETIN

OF THE

SOUTH EAST ALABAMA

Agricultural Experiment Station,

ABBEVILLE, ALA.

APRIL, 1898.

S. T. SLAYTON, B. S.

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CO-OPERATIVE FERTILIZER TEST; CONDUCTED ON THE EXPERIMENT STATION OF THE SOUTHEAST ALABAMA AGRICULTURAL SCHOOL IN 1897.

This was a test of the value of different fertilizers when applied separately or in combination with others. Fertilizers and directions for this test were furnished by Prof. J. F. Duggar, Agriculturist of the Alabama Experiment Station at Auburn. It was not conducted as was originally designed by him, yet this does not debar us from drawing some definite conclusions, regarding the proportions and amounts in which fertilizers should be applied.

The land on which this experiment was conducted, is a light red soil, inclined to be sandy, with a red clay subsoil, which latter is very compact. The compact sub-soil renders the land very retentive of moisture and fertilizers. It is high upland with a slope of three or four feet to every one hundred, free from stumps, gullies, and other irregularities. It has a light friable texture, rendering it very easy to cultivate. From my own observation, and from the opinion of others who are acquainted with the soil of Henry and adjoining counties, I feel justified in saying that the plot used for this experiment is a fair representative of very large bodies of land in the district. It has been cleared for more than fifty years, and has been in constant cultivation since that time.

It is regarded as medium cotton land.

The rows were laid off four feet and four inches apart, with an eight-inch shovel. This furrow was listed on by running two furrows on each side with a six-inch turn plow, throwing the wing to the furrow in each case. The middles were then run out with a shovel; the fertilizers were applied in this furrow at a uniform rate, and thoroughly mixed by running a scooter in the shovel furrow. The land was then rebedded. A small scooter was run in the top of the bed, the seed sown thinly, and covered with a board. Planting was delayed some eight or ten days on account of excessive rains. After planting there was a good rain on May 20; it was then somewhat dry until June the 4th. After this the seasons were good until maturity.

Below is the amounts and kinds of fertilizers used as well as the yields. The plots were (1-7) one-seventh acre.

Plot No.	Fertilizers.	Amount per Plot.	Amount per Acre.	Seed Cotton.	
				Yield per plot.	Yield per acre.
1	Cotton Seed Meal.... Acid Phosphate....... Kainit................	25 lbs. 30 lbs. 12½ lbs.	175 lbs. 210 lbs. 87½ lbs.	102 lbs.	714lbs
2	Cotton Seed Meal.... Acid Phosphate ...... Kainit	25 lbs. 30 lbs. 28 lbs.	175 lbs. 210 lbs 196 lbs.	122 lbs.	854lbs
3	Cotton Seed Meal.... Acid Phosphate......	25 lbs. 30 lbs.	175 lbs. 210 lbs.	103 lbs.	721lbs
4	Acid Phosphate ...... Kainit................	30 lbs. 25 lbs.	210 lbs. 175 lbs.	103 lbs.	721lbs
5	Cotton Seed Meal.... Kainit................	25 lbs. 25 lbs.	175 lbs. 175 lbs.	92 lbs.	644lbs
6	Cotton Seed Meal....	25 lbs.	175 lbs.	78 lbs.	546lbs
7	Acid Phosphate	30 lbs.	210 lbs.	51 lbs.	357lbs
8	Kainit..........	25 lbs.	175 lbs.	51 lbs.	357lbs
9	Lime................	37½ lbs.	262½ lbs.	45 lbs.	315lbs

We notice from the table that when fertilizers were used separately, the yield was small with phosphate, with kainit and with lime. Cotton seed meal was the only one of these fertilizers, which, when used alone, was able to produce a moderate yield. This was probably due to the fact, that besides the nitrogen,—in the form of ammonia,—which gives the greater part of the value to cotton seed meal, it also contains small quanties of phosphoric acid and potash.

Acid phosphate was needed by this soil, but in combination with cotton seed meal rather than alone.

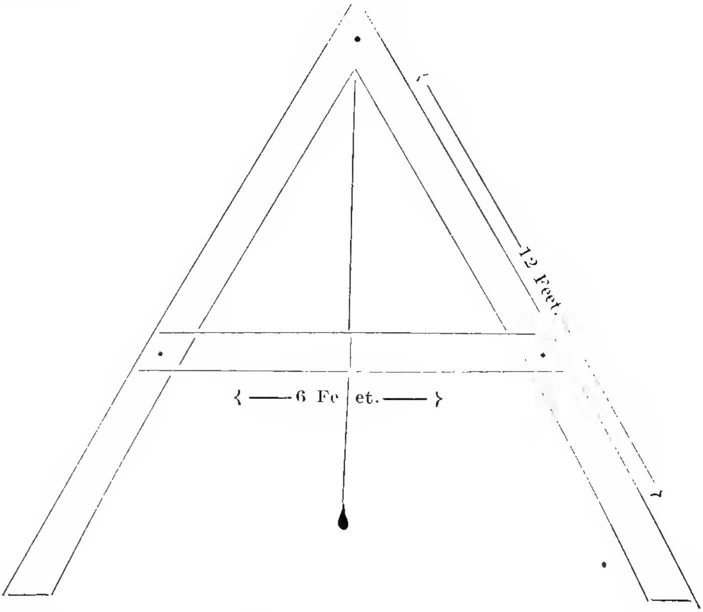
The effects of kainit are not clearly shown by the figures. Plot 1 with 87½ pounds of kainit in addition to acid phosphate and cotton seed meal was no more productive than plot 3, where no kainit was used; but plot 2 with 196 pounds of kainit made a better yield than plot 3, where kainit was omitted.

NOTES ON TERRACING.

In 1890, forty acres of worn-out upland was purchased near Abbeville; to be used as the Experiment Station Farm of the Southeast Alabama Agricultural School. There were numerous gullies on the land and some parts of it seemed almost beyond reclamation; however it was terraced, and the gullies filled, and a vigorous effort made to get the land in shape for experiments. After one or two years of attention the land was sufficiently improved to grow any of the crops, ordinarily grown on our Southern farms. And it is now considered fair upland.

To do the work of terracing well; it is necessary to have an accurate level of same form to insure having all points of the terrace on the same level. One form is a home-made contrivance, which is made by putting three pieces of timber, say one by three inches in the form of a capital A, with a plumb bob suspended from the top angle, where the two legs meet. The cross bar is fastened to the legs at equal distances from the top. To get the center (O point) of the cross bar, fasten the two legs together and set them up on a floor which is shown to be level by a carpenters level; drop the plumb line, from the top angle, and mark the point on the cross beam where it crosses. This completes the making of the instrument. In the field whenever the string passes over this point the two legs rest on points which are on the same level. Instead of the plumb bob, a spirit level may be attached to the cross bar which serves equally as well.

Below is a cut of the terrace level which has just been described.



This form is sometimes known as a "stepping jack," because in actual work, one leg is placed in front of the other alternately.

The best instruments for this work however may be bought in the markets. One of these is made by W. C. Holmes, 12 N. Forsyth Street, Atlanta, Ga., which does very satisfactory work and can be bought for $5.00.

Another form consists of a telescope made for reading at long and short distances, with a spirit level attached to a metallic base. The level can be placed in the proper position, by means of set screws. This instrument is mounted on a three legged frame. When the level is in position, place the rod on a spot which will form a part of the terrace; raise or lower the target on the red (a rod or white string tied around the rod will do) until it gets on a level with the line of sight. Do not move the target on the rod any more during the operation. Move the stake fifteen steps, and carry up or down the hill until the point is on the same level as the instrument, where the target will be in the line of sight. Continue this until the terrace is completed, placing a stake, or some mark at the points designated by the rod. When one terrace is laid off it will often be unnecessary to move the instrument for the next one below, but simply to move the target three feet up the staff, if the work was begun at the top of the slope, as generally it should be. Three feet is the usual fall between each two terraces; but on steep hillsides four feet may be used.

Terraces should be laid off, by running two furrows along the line of stakes with a turn plow throwing the furrows together on a narrow unbroken strip of land. Then make a somewhat low, yet firm embankment of earth, especially where water is accustomed to run in a channel, this can be done with hoes. Logs, brush and trash of all kinds should never be thrown in the line of a terrace, as their advantage is merely temporary. They eventually decay leaving dangerous holes in the embankment for the passage of water. Gullies that have old runs should never be allowed to remain, but should be filled by throwing straw and leaves, and plowing along the banks,—with the gully,—and then dragging the dirt into them. Sometimes, occasional strong dams will be necessary. A gully filled not only adds to the amount of cultivable land, but it permits longer rows and hence saves much of the time consumed in turning, while plowing short rows.

The object of terracing is to prevent washing. This is most completely done by transforming the hillsides and slopes into a series of planes rising successively above each other like steps. Such complete work is seldom done, because it requires hill-side or swivel plows, which are comparatively expensive. These plows throw all the dirt down the hill. Instead of this plan most farmers rely on low firm embankments as the sole method to control the water that falls on the land.

It is sometimes necessary to run a hill-side ditch around the top of the field to prevent water that has fallen above the field, from sweeping over it. Some advantages of terraces over the exclusive dependence, on hill-side ditches are the following;—(1.) Terraces can be used to equal advantage on uncultivated pasture lands as on cultivated lands; while hill-side ditches overflow where paths cross them. And in addition they scour out deep gullies, if not looked after very carefully. (2.) Terraces do not throw floods of water into the lowlands, causing over-flows of drains, as in the case of hill-side ditches, but absorb a great deal, and cause the rest to flow off in a thin sheet, at a slow rate. (3.) They do not transport so much of the soil from the top to the bottom of the slope. (4.) The chemical compounds which are formed in the soil from the action of lime, and by the process of nitrification are more liable to remain in the land when terraces are used. (5.) I am quite sure that the land is kept in a better condition mechanically, as it remains moist longer after rains. Terraces offer a means of preventing concentration of water; the smaller the volume, the slower the flow.

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